



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,607	08/02/2002	Manfred Rothhardt	32860-000283/US	9049

30596 7590 12/02/2004

HARNESS, DICKEY & PIERCE, P.L.C.
P.O.BOX 8910
RESTON, VA 20195

EXAMINER

CAPUTO, LISA M

ART UNIT	PAPER NUMBER
----------	--------------

2876

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,607

Applicant(s)

ROTHHARDT ET AL.

Examiner

Lisa M Caputo

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

1. Receipt is acknowledged of the amendment and drawing filed 14 September 2004.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

Regarding claim 1, line 6: Claim 1 recites "...when the temperature of the conductor..." but it is not specified which temperature is referenced (i.e. "first" temperature?).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-6, 16, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Beall et al. (WO 97/26572, from hereinafter "Beall").

Regarding claims 1, 16, and 19, Beall teaches a method and system for producing an optical grating on an optical conductor that comprises durably fixing the conductor (optical fiber 24) at least at two fixing points (points 30 and 32) arranged at a distance from one another, and producing the grating (reflective grating 26) on the fixed conductor between the fixing points (see Figure 1, page 9, lines 5-17; page 10 line 29 to

page 11 line 3). Further, Beall teaches that the conductor is fixed at a first temperature and that the grating is produced on the fixed conductor between the fixing points when the temperature of the conductor falls below a temperature at which degradation or deformation of the grating occurs when it is shown that the substrate provides compensation over a wide temperature range, i.e. -40 degrees Celsius to +85 degrees Celsius, with an even wider range of temperatures tolerated (see page 6, lines 23-31). It is an inherent property of the conductor to be at a temperature range which does not cause degradation or deformation of the grating.

Regarding claim 3, Beall teaches that the optical fiber is stressed between the fixing points during the production of the grating (i.e. mounting the fiber under tension) (see page 10 line 29 to page 11 line 3).

Regarding claims 4 and 20, Beall teaches an arrangement that comprises a carrier body (20), an elongated optical conductor (optical fiber 24), and an optical grating (reflective grating 26), wherein the conductor is fixed at least at two fixing points (points 30 and 32) arranged at a distance from one another on the carrier body, and wherein the conductor is durably fixed on the carrier body at the fixing points, and wherein the grating is a grating which is produced after the durable fixing of the conductor on the carrier body (see Figure 1, page 9, lines 5-17; page 10 line 29 to page 11 line 3). Further, Beall teaches that the conductor is fixed at a first temperature and that the grating is produced on the fixed conductor between the fixing points when the temperature of the conductor falls below a temperature at which degradation or deformation of the grating occurs when it is shown that the substrate provides

compensation over a wide temperature range, i.e. -40 degrees Celsius to +85 degrees Celsius, with an even wider range of temperatures tolerated (see page 6, lines 23-31). It is an inherent property of the conductor to be at a temperature range which does not cause degradation or deformation of the grating.

Regarding claims 5-6, Beall teaches that at least one optical grating is a Bragg grating (reflective grating 26) (see Figure 1, page 9, lines 5-17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 7-15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beall et al. (WO 97/26572, from hereinafter "Beall").

Regarding claims 2, 8, 13, and 17, although Beall fails to specifically teach that the optical conductor is stress-free (i.e. freely suspended) between the fixing points during the production of the grating, Beall does teach that when performing the fabrication, the proper choice of tension assures that the fiber is not under compression at all anticipated use temperatures. The required degree of tension to compensate for the negative expansion in a particular application can readily be calculated by those with skill in the art (see page 9, lines 13-17).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to be able to use the method of Beall and ordinary skill in the art to calculate the correct tension in a fiber for optimal mounting and production, which depending on the temperature range, is a stress-free tension.

Regarding claims 7 and 12, although Beall teaches that the conductor is fixed at a first temperature and that the grating is produced on the fixed conductor between the fixing points when the temperature of the conductor falls below a temperature at which degradation or deformation of the grating occurs when it is shown that the substrate provides compensation over a wide temperature range, i.e. -40 degrees Celsius to +85 degrees Celsius (see page 6, lines 23-31), Beall does not specifically teach that the temperature at which the degradation or deformation of the grating occurs is 150 degrees Celsius.

However, it is an inherent property of the conductor to be at a temperature range which does not cause degradation or deformation of the grating and Beall does teach that the substrate in different applications can have an even wider range of

temperatures that are tolerated (see page 6, lines 23-31). In addition, 85 degrees Celsius is within the same order of temperature range as 150 degrees Celsius.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the temperature of 150 degrees Celsius because this temperature can be supported by the substrate and does not cause degradation or deformation of the grating.

Regarding claims 9-11, 14-15, and 18, Beall fails to specifically teach that at least two optical gratings are produced on the optical conductor in different orientations (i.e. simultaneously or sequentially, spatially separate or superposed to one another).

However, Beall does indeed teach that *at least one* reflective grating 26 is defined on the substrate 20 upper surface (hence, there can be more than one placed—see Figure 1, abstract) and it is well known in the art that two optical gratings can be placed on a grating and furthermore that it is a duplication of parts.

Hence, in view of the teaching of Beall and with ordinary skill in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ two optical gratings at different orientations in order for the device to operate more efficiently.

Response to Arguments

6. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

7. Examiner appreciates applicant's arguments that the Beall reference does not teach the certain temperature limitations of the recited claims but respectfully submits

Art Unit: 2876

that as previously claimed, the limitations of the claims are met by Beall. Examiner has provided a revised rejection with the same prior art reference to respond to the amended claims. With regards to independent claims 1 and 4, it is respectfully submitted that Beall does indeed teach a certain temperature range which is optimal for the substrate, and it is respectfully submitted that it is an inherent feature of the substrate to be at a temperature which does not cause the grating to be destroyed (i.e. the grating may become degraded or deformed). See 35 U.S.C. 102 and 35 U.S.C. 103 rejections above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lisa M. Caputo** whose telephone number is (571) 272-

Art Unit: 2876

2388. The examiner can normally be reached between the hours of 8:30AM to 5:00PM Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached at **(571) 272-**

2398. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [lisa.caputo@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LMC

November 24, 2004



DIANE I. LEE
PRIMARY EXAMINER